

What is claimed is:

1. A device for managing data objects, comprising:

displaying means for displaying thumbnails
representative of data objects;

5 defining means for defining a focus region that
indicates a focus thumbnail subject to processes;

moving means for moving the displayed thumbnails along
a predetermined path through the focus region; and

enable/disable means for selectively enabling and
10 disabling the moving means, the displaying means statically
displaying a single thumbnail in the focus region when the
enable/disable means disables the moving means, the
displaying means displaying the thumbnails to move along the
predetermined path through the focus region when the
15 enable/disable means enables the moving means.

2. A device as claimed in claim 1, wherein the
displaying means displays the thumbnails in partial overlap
with sections of each thumbnail exposed, and changes
relative position of thumbnails to change exposed sections
20 of thumbnails while the enable/disable means enables the
moving means.

3. A device as claimed in claim 1, wherein the
displaying means displays the thumbnails in partial overlap,
and changes overlapping sections of thumbnails while the
25 enable/disable means disables the moving means.

4. A device as claimed in claim 1, wherein the displaying means further displays an interface portion with a plurality of indicia, and further comprising selection means for selecting one of the indicia of the interface portion.

5. A device as claimed in claim 4, wherein the indicia include a plurality of layout indicia each representing one of a plurality of layouts, the displaying means displaying the thumbnails in relative positions, and the moving means moving the thumbnails along a predetermined path, in accordance with the layout indicium selected by the selection means.

6. A device as claimed in claim 5, wherein the displaying means further displays file names of files containing the data objects of the thumbnails, the displaying means displaying the file names in a pattern that is inverse a pattern formed by the thumbnails.

7. A device as claimed in claim 5, wherein:

the displaying means displays the selected layout indicium at a present layout position to indicate presently displayed layout of the thumbnails; and

when the selection means newly selects a layout indicium, the displaying means displays movement of the newly selected layout indicium to the present layout position and movement of a preceding selected layout

indicium out of the present layout position.

8. A device as claimed in claim 5, wherein:

the layout indicia include a line indicium; and

when the selection means selects the line indicium,

5 the displaying means displays the thumbnails in a line layout with the thumbnails aligned in partial overlap in a line.

9. A device as claimed in claim 8, wherein the

displaying means displays the thumbnails in the line layout with a reciprocal pivoting motion, the focus thumbnail serving as an unmoving axis of the pivoting movement.

10. A device as claimed in claim 5, wherein:

the layout indicia include a circle indicium; and

when the selection means selects the circle indicium,

15 the displaying means displays the thumbnails in a circle layout with the thumbnails disposed in partial overlap in a circular ring.

11. A device as claimed in claim 10, wherein, when

20 number of thumbnails exceeds a predetermined number, the displaying means displays a portion of the thumbnails in an arc with a predetermined radius and the moving means sequentially changes displayed thumbnails while enabled.

12. A device as claimed in claim 5, wherein:

the layout indicia include a grid indicium; and

25 when the selection means selects the grid indicium,

the displaying means displays the thumbnails in a grid layout with thumbnails aligned with fixed mutual positions in rows and columns.

13. A device as claimed in claim 12, wherein:

5 the displaying means displays the thumbnails in the grid layout in rows having a length that can be completely displayed at once; and

when the enable/disable means enables the moving means, the moving means moves the thumbnails of a single column through the focus region.

14. A device as claimed in claim 12, wherein the moving means when enabled moves the thumbnails in the grid layout through the focus region one row at a time in succession, starting from the same end of each successive row.

15. A device as claimed in claim 5, wherein:

the layout indicia include a helix indicium; and

when the selection means selects the helix indicium, the displaying means displays the thumbnails in a helix layout that mimics a side view of a helix by displaying thumbnails at a far side of the helix in a smaller scale than thumbnails at a near side of the helix.

16. A device as claimed in claim 15, wherein the displaying means displays the thumbnails in the helix layout to mimic a helix with a shorter radius when the

enable/disable means enables the moving means than when the enable/disable means disables the moving means.

17. A device as claimed in claim 15, wherein the displaying means displays movement of the thumbnails in the helix layout through the focus region by displaying spiral movement of the helix.

18. A device as claimed in claim 15, wherein the displaying means displays movement of the thumbnails in the helix layout through the focus region by shifting the helix one pitch distance to move the present focus thumbnail out of the focus region and to move a thumbnail of an adjacent ring of the helix into the focus region.

19. A device as claimed in claim 5, wherein, when the selection means selects a new layout indicium that is different from a preceding selected layout indicium, the displaying means repositions the thumbnails into a new layout that corresponds to the new layout indicium while displaying the thumbnails moving toward and into positions of the new layout.

20. A device as claimed in claim 4, wherein the indicia include a plurality of order indicia each representing one of a plurality of predetermined sequence orders, the displaying means displaying the thumbnails in an order represented by an order indicium selected by the selection means.

21. A device as claimed in claim 20, wherein:

the displaying means displays the selected order indicium at a present order position to indicate present order of the thumbnails; and

5 when the selection means newly selects an order indicium, the displaying means displays movement of the newly selected order indicium to the present order position and movement of a preceding selected order indicium out of the present order position.

10 22. A device as claimed in claim 20, wherein, when the selection means selects a new order indicium that is different from a preceding selected order indicium, the displaying means repositions the thumbnails according a new order that corresponds to the new order indicium, while displaying movement of the thumbnails into positions appropriate for the new order.

15 23. A device as claimed in claim 20, wherein:

the order indicia include a time indicium; and

20 when the selection means selects the time indicium, the displaying means displays the thumbnails in groups according to when the corresponding data objects were produced.

24. A device as claimed in claim 20, wherein:

the order indicia include a time indicium; and

25 when the selection means selects the time indicium,

the displaying means displays the thumbnails separated by distance corresponding to time between when the corresponding data objects were produced.

25. A device as claimed in claim 4, wherein the indicia include a plurality of application indicia each representing one of a plurality of applications, and further comprising an application launcher that launches an application that corresponds to the application indicium selected by the selection means.

26. A device as claimed in claim 1, further comprising further request means for indicating desire for further information on data object that corresponds to the focus thumbnail, the displaying means enlarging display of the focus thumbnail when the further request means indicates a desire for further information.

27. A device as claimed in claim 26, wherein the displaying means displays application indicia representing software applications when the further information request means indicates a desire for further information on the data object of the focus thumbnail.

28. A device as claimed in claim 1, wherein the displaying means displays thumbnails of audio data objects for audio contents based on data of the audio data object.

29. A device as claimed in claim 28, wherein the displaying means displays thumbnails of audio data objects

according to amount of data in the audio data object.

30. A device as claimed in claim 28, wherein the displaying means displays thumbnails of audio data objects according to content of data in the audio data object.

5 31. A device as claimed in claim 1, further comprising:

retrieval means for retrieving data objects from a memory card; and

10 recognition means for recognizing presence of a memory card and activating the retrieval means when a memory card is present.

15 32. A device as claimed in claim 31, wherein the displaying means displays thumbnails one at a time in a sequence that the retrieval means retrieves the data objects from the memory card.

20 33. A device as claimed in claim 1, further comprising search means for searching to find thumbnails that meet certain criteria, the displaying means displaying only thumbnails found by the search means.

25 34. A device as claimed in claim 1, wherein when the enable/disable means enables the moving means, the moving means determines a target position for each thumbnail, and moves the thumbnails to their respective target positions in an easing-in movement.

30 35. A device as claimed in claim 1, wherein the

displaying means displays the thumbnails in a line layout with the thumbnails aligned in partial overlap in a line.

36. A device as claimed in claim 1, wherein the displaying means displays the thumbnails in a circle layout with the thumbnails disposed in partial overlap in a circular ring.

37. A device as claimed in claim 1, wherein the displaying means displays the thumbnails in a grid layout with thumbnails aligned with fixed mutual positions in rows and columns.

38. A device as claimed in claim 1, wherein the displaying means displays the thumbnails in a helix layout that mimics a side view of a helix by displaying thumbnails at a far side of the helix in a smaller scale than thumbnails at a near side of the helix.

39. A method for managing data objects, comprising the steps of:

displaying thumbnails representative of data objects;

defining a focus region that indicates a focus thumbnail subject to processes; and

selectively displaying a single thumbnail in the focus region, and displaying the thumbnails moving along a predetermined path through the focus region.

40. A program storage medium for storing data of a program indicative of a process for managing data objects,

17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851.

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a program for selectively displaying a single thumbnail in the focus region, and displaying the thumbnails moving along a predetermined path through the focus region.